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ART. XI. — *The Earth and Man : Lectures on Comparative Physical Geography, in its Relation to the History of Mankind*. By ARNOLD GUYOT, Professor of Physical Geography and History, at Neuchatel, Switzerland. Translated from the French, by C. C. FELTON, Professor in Harvard University. Boston : Gould, Kendall, and Lincoln. 1849. 12mo. pp. 310.

THE progress and true utility of human knowledge are not probably more assisted by brilliant discoveries, such as elicit the admiration and gratitude of mankind, than by those labors less distinguished, and less liberally acknowledged, which are directed to its diffusion ; especially when these are performed by minds disciplined in the art of teaching, imbued with a full appreciation of the beauty and value of truth, and having the power of original thought and investigation. The former may dazzle as well as attract ; if they sometimes rouse a spirit of emulation, they may also check its ardor by the very grandeur of the achievement. But since it is granted to only a few (and those not necessarily a *happy* few,) to make great discoveries, whilst most men who choose to cultivate and exercise their faculties may be vigorous and independent thinkers, we must be grateful to those who collect together the speculations and suggestions upon any single topic, which, distributed through detached memoirs or proceedings, are but little known even to the learned, and combining them into a harmonious and consistent scheme, enlarged and improved by their own mature reflections, present to general readers a novel and valuable compend, like that which we have now to notice.

In this way, many new branches have been added to the tree of knowledge. A few scattered facts are first observed and recorded, on account of their bearing upon some question of standard science. A new direction is thus given to inquiry. The facts and observations multiply in importance and variety, and are connected by discovery, or by the theories of an acute and ingenious reasoner, until they form a comprehensive and useful system, valuable in itself, and indispensable to the progress of the parent science from which they originated. Thus gradually formed, a new science, like

*Ethnology*, or *Physical Geography*, is at last announced to the world.

To this last department of modern learning belongs the work of Professor Guyot. It is, however, a work of a different kind and having a very different object from the learned and elaborate compilation of Mrs. Somerville. The *Physical Geography* of this distinguished lady is designed to embody the most striking facts and conclusions of modern science concerning the geological structure of our globe, the convulsions which have led to its present geographical arrangement and to the actual distribution of land and water, and the peculiar physical features of the continents — their mountains, table-lands, plains, and deserts, their lakes and rivers. The theory of the ocean and its movements, of the atmosphere and its vicissitudes, and finally a descriptive enumeration of the peculiar plants and animals of every part of the world, furnish the other topics of a work which has for its principal object the study of the earth. One chapter only, the concluding one, is devoted to the human race, its distribution, condition, and prospects ; and the few remarks upon the nature and progress of civilization and the physical circumstances by which they are controlled, that are dispersed through the body of the work, are made without any apparent design to trace between these causes and the historical condition of the nations a fundamental and permanent connection.

The *Comparative Physical Geography* of Professor Guyot is devoted to the contemplation of Earth and Man in their relations to each other ; its aim is to explain and illustrate the intimate and unceasing dependence of the life of man upon the physical features of the region in which that life originates and is developed. This point, however, which is the consummation of the inquiry, is only arrived at after a careful discussion of the means by which its value and truth are to be appreciated. Those who have been accustomed to regard geography as a merely descriptive branch of learning, drier than the remainder biscuit after a voyage, or than the *hortus siccus* of the botanist, an ephemeral knowledge of which is the pride of the sophomore, as ignorance of it (almost inevitable) brings shame to the riper scholar, will be delighted to find this hitherto unattractive pursuit converted

into a science, the principles of which are definite and the results conclusive ; a science that embraces the investigation of natural laws and interprets their mode of operation ; which professes to discover in the rudest forms, and apparently confused arrangement, of the materials composing the planets' crust a new manifestation of the wisdom which has filled the earth with its riches.

Geography, as it is presented to us by Professor Guyot, is the "physical science of the globe, or the science of the general phenomena of the present life of the globe in reference to their connection and their mutual dependence. This is the geography of Humboldt and of Ritter." To them and to Steffens the author assigns the principal credit as the founders of this new science. The fundamental idea upon which the novel and interesting speculations of these philosophers is based is, that the form, arrangement, and distribution of the terrestrial masses on the earth's surface are not, as they appear upon a superficial examination, accidental ; but that they are made upon a plan, and with a design, having strict reference to the character of life, both vegetable and animal, that is found on them, and also to the states of society and the progress of civilization, as they have been successively displayed in the course of history. Man being the great end of creation, the continents bear the same relation to him in his collective condition that the body does to the soul ; and thus "nature and history, the earth and man, stand in the closest relations to each other, and form only one grand harmony."

The way in which the southern extremities of the two worlds terminate in a point, while they go on widening towards the north, was first noticed, as Professor Guyot tells us, by Lord Bacon. After him, Forster, the companion of Cook, pointed out three analogies or coincidences of structure of all the continents. First, their southern extremities end abruptly in mountainous regions, extending on the other side far into the interior. Secondly, the continents have, east of their southern points, a large island, or a group of islands, more or less considerable. Thirdly, each of the continents has on the western side a deep bend towards the interior. Steffens pursued the study of these analogies of structure still farther, and opened several new views of the subject. The

most striking is the classification of the great terrestrial masses into double worlds, united to each other by an isthmus, or chain of islands, and having on one side of the isthmus an archipelago, and on the opposite side a peninsula.

"But none of the authors who occupied themselves with these questions of configuration, and of grouping of the terrestrial spaces, has done so in a manner more happy and more fruitful in important results than Carl Ritter," to whom Professor Guyot gives the title of "founder of historical geography, in the high sense that should be attached to the word." By a great circle of the earth, passing through Peru and the south of Asia, Ritter divided the globe into two new hemispheres, one the continental or land hemisphere, the other the oceanic or water hemisphere. He pointed out the remarkable contrast that exists between the old and new worlds in their extension and direction. Asia-Europe stretches from east to west over one half the circumference of the globe, occupying chiefly the temperate zone; while America has its greatest length from north to south, in which direction it covers "two-thirds of the [semi-] circumference of the earth." The consequence of this disposition of the continents is, that throughout the vast extent of Asia-Europe, the changes of latitude being limited, the varieties of climate depend principally upon terrestrial elevations. But "America traverses nearly all the climatic zones of the earth, and presents in this relation a much greater variety of phenomena."

The difference between the continents which is the most fruitful in results, and the most influential in its effect upon the progress of civilization, is that which exists in their contours or outlines, or extent of coast. The number of square miles of surface for one mile of coast is, in Europe, 156, and in North America, 228; while in Asia it is 459, and in Africa, 623.\* When we consider that, after association into distinct communities, no cause has exerted an influence so powerful and beneficial upon the destinies of our race as the traffic of the seas, we shall be prepared to appreciate the importance of these distinctions. And here we are led to remark, that as the full development of the powers and faculties of man has been fostered in an eminent degree by commerce and the

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\* These numbers differ a little from those given by Mrs. Somerville.

facilities of intercommunication among the families of the earth, we cannot but regard the present time, which witnesses such astonishing improvements in the means of navigation and intercourse between remote nations and distant people of the same nation, as the beginning of a new era in the progress of civilization.

From the consideration of the continents in their relations of contrast and similarity with each other, Professor Guyot passes to an explanation of their individual peculiarities, a knowledge of which is essential to an estimate of the form and character which this new civilization is to take. The internal subdivisions of the terrestrial masses, created by varieties of surface, by mountain ridges, table lands and plains, by inland seas, lakes, and rivers, by deserts and impenetrable woods, are more intelligible, and more immediate in their effects, than the configurations of these masses, their astronomical positions and their indentations. Buffon was the first to make "the important remark, that the principal mountain chains of the Old World follow the direction of the parallels, and those of the New World the direction of the meridians; and that the secondary chains follow the inverse in both." The same may be said of the rivers. In all the continents, the situation of the great mountain chains is out of the centre, which gives rise to two slopes unequal in length and inclination; the inclination of the slopes being proportionate to the absolute elevation of the mountains. In the Old World, the longest of these slopes is turned towards the north, and the shortest to the south; in the New World, the longest slope descends towards the east, and the shortest to the west. Again, the Old World is a world of table-lands and mountains; the New, a world of plains.

Relations and distinctions like these lie at the foundation of our author's views. They are to be found also in the *Physical Geography* of Mrs. Somerville, and the *Cosmos* of Baron Von Humboldt, accompanied in the latter by those lessons of wisdom which flow easily from the venerable lips of this good and great man. Professor Guyot, however, it is just to say, has not copied the style of either of these writers. He has produced these relations and contrasts not only in greater number, but with greater particularity, and has attached to them an important and definite meaning.

It is, however, beyond this portion of the book, which may be considered as only introductory, that the author approaches the real object of his undertaking, which is to show how "these oppositions resolve themselves into a grand harmony, in which each continent has its part to perform, while all live at the same time a common life."

"To arrive at this final result, nature alone is not sufficient; there is needed something more than a physical tie between all these parts of the world; there is needed a moral bond; a soul is wanting to this body, to set its organs in action. Now, it is man, it is human societies, which alone can animate the great frame, bind together all the parts, and render perfect that organism which is the end and aim of the long procession of existence upon this earth."

Although our author speaks of the general life of the globe, of the physiology of the great terrestrial forms, of that principle of a mutual exchange of relations which lies at the foundation of all organic and inorganic life, and of these assemblages and combinations of material elements as of "organic harps diversely framed," which become harmonious under the plastic influence of human societies, his researches are conducted in the humble and inquiring spirit of a wise and modest philosophy. Guided and governed by a firm and enlightened religious faith, he is wholly exempt from those

"Shapings of the unregenerate mind;  
Bubbles that flitter as they rise and break  
On vain Philosophy's aye-babbling spring,"

which we have often been called upon to condemn. Assured that in all things there is to be discovered a divine idea and purpose, a knowledge of which will reward the patience of the investigator, he addresses himself to the task of tracing out the hidden causes and means of human development and progress in the various forms in which they appear in history. The early spiritual culture of the Hindoos, and the complete and elaborate domestic economy of the Chinese, are contrasted with the nomadic existence of the fierce nations of the north, who left their hive, at first to overwhelm, and afterwards to profit by, the civilization of southern Europe. The connection of the stationary condition of the East, and the restless and progressive improvement of the West, with the peculiar physical features of these regions, is minutely and accurately displayed.

We regret that the work of Professor Guyot was placed in our hands at too late a period to do justice to the subject or the author. The want of time and space is one of the reviewer's common phrases, which, as Dr. Johnson says of the ordinary forms of courtesy, though they want the allurements of novelty, enjoy the security of prescription. But on this occasion, we employ it in the way of apology to Mr. Guyot, to whose book we have failed to do justice. To the reader we shall owe no apology, if we have said enough to excite his curiosity, and to persuade him to look to the book itself for further instruction. We will only add, that to an American, above all others, the study of these relations must prove agreeable and profitable; it will give him a new idea of the prospects and destiny of the nation to which he belongs, and it will impress him with a new sense of the deep responsibility that attaches to a people, to whose care is chiefly assigned the great cause of human liberty and progress.

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- ART. XII. — 1. *Ancient Sea-Margins, as Memorials of Changes in the Relative Level of Sea and Land.* By ROBERT CHAMBERS, Esq., F. R. S. E. Edinburgh: W. & R. Chambers. 1848. 8vo. pp. 321.
2. *A Memoir upon the Geological Action of the Tidal and Other Currents of the Ocean.* By CHARLES HENRY DAVIS, A. M., A. A. S., etc., Lieutenant in the U. S. Navy. From the Memoirs of the American Academy of Arts and Sciences. New Series. Vol. IV. Cambridge. 1849.

Who wrote the *Vestiges of the Natural History of Creation*? The question has excited a good deal of curiosity, and has not yet received any answer except from vague and uncertain rumor. The author certainly intended to remain *incognito*, and seems even to have taken considerable precaution that he might not be unmasked. In his "note conclusive," he says that his book was "composed in solitude, and almost without the cognizance of a single human being;" and that "for reasons which need not be specified, the author's name is retained in its original obscurity, and, in all